

CLAIMS

What is claimed is:

- 1 1. A chiller for reducing the temperature of previously eviscerated whole
2 birds and the like, comprising:
3 a tank having a bird outlet end, a bird inlet end, an inlet end plate, an outlet end
4 plate, and a water reservoir between said ends;
5 water circulation means for introducing water into said reservoir at said bird outlet
6 end of said tank, draining water at said bird inlet end of said tank, and forming a
7 movement of water generally from said bird outlet end toward said bird inlet end of said
8 tank;
9 a motive device for urging the birds from said bird inlet end to said bird outlet end
10 of said tank;
11 power means in driving relationship with said motive device;
12 a transverse wall having a lower portion, a central portion, and a top edge, said
13 transverse wall being disposed at said bird inlet end and substantially parallel to said inlet
14 end plate; and
15 wherein a sump is formed between said lower portion and said inlet end plate.

1 2. The chiller of claim 1, wherein said motive device further comprises an
2 auger in said tank extending between said bird outlet end and said bird inlet end of said
3 tank, said auger including an auger shaft and a helical blade structure mounted to and
4 extending about said auger shaft.

1 3. The chiller of claim 2, wherein said helical blade structure includes a
2 leading edge disposed adjacent to said transverse wall, said auger shaft extending through
3 said transverse wall.

1 4. The chiller of claim 2, wherein said tank is an elongated semi-cylindrical
2 open top tank defining a trough-shaped reservoir with an upper rim.

1 5. The chiller of claim 1, said central portion defining a water passage for
2 passing water from one side to another side of said transverse wall.

1 6. The chiller of claim 5, wherein said water passage further comprises a
2 plurality of apertures configured to prevent passage of the birds therethrough.

1 7. The chiller of claim 1, further comprising deflector means configured to
2 prevent the birds from entering said sump.

1 8. The chiller of claim 7, wherein said deflector means further comprises a
2 grill extending from said top edge to said inlet end plate.

1 9. The chiller of claim 7, further comprising a stiffening member extending
2 along said top edge of said transverse wall.

1 10. The chiller of claim 1, said water circulation means further comprising a
2 pump having an inlet and an outlet, a suction header, a fill header, and a recirculation
3 header, wherein said suction header and said recirculation header are in fluid
4 communication with said sump, said inlet is in fluid communication with said suction
5 header, and said outlet is alternately in fluid communication with said recirculation
6 header and said fill header.

1 11. The chiller of claim 10, wherein said water fill means further comprises a
2 heat exchanger for cooling the water as it is circulated, said heat exchanger being
3 disposed between said outlet and said inlet and recirculation headers.

1 12. The chiller of claim 1, wherein said sump has a capacity of 300 to 500
2 gallons.

1 13. The chiller of claim 1, further including a tank drain extending from said
2 lower portion to said inlet end plate, thereby passing through said sump, said tank drain
3 being configured to drain said water reservoir independently of said sump.

1 14. The chiller of claim 13, wherein said tank drain further comprises a drain
2 pipe, said drain pipe being segregated from said sump by a false bottom.

1 15. The chiller of claim 1, wherein said motive device further comprises a
2 drag device.

1 16. A transverse wall for forming a sump in a chiller for reducing the
2 temperature of previously eviscerated whole birds and the like, the chiller including a
3 tank having a bird outlet end plate, an auger including an auger shaft and a helical blade
4 structure mounted to and extending about the auger shaft for urging the birds along the
5 tank, comprising:

6 a lower portion;

7 a central portion;

8 a top edge;

9 an outer periphery, said outer periphery being shaped substantially similarly to a
10 cross section of the tank; and

11 wherein disposing said transverse wall in the tank substantially parallel to the bird
12 outlet end plate forms the sump between said lower portion and the bird outlet end plate.

1 17. The transverse wall of claim 16, said central portion defining a water
2 passage for passing water from one side to another side of said transverse wall.

1 18. The transverse wall of claim 17, wherein said central portion further
2 defines an auger shaft opening such that the auger shaft may extend therethrough.

1 19. The transverse wall of claim 18, wherein said water passage further
2 comprises a plurality of apertures configured to prevent the passage of the birds
3 therethrough.

1 20. A chiller for reducing the temperature of previously eviscerated whole
2 birds and the like, comprising:

3 a tank having a bird inlet end, a bird outlet end, an inlet end plate at said bird inlet
4 end, an outlet end plate at said bird outlet end, and a water reservoir between said bird
5 inlet and outlet ends;

6 a transverse wall extending across said tank having a lower portion, a central
7 portion, and a top edge, said transverse wall being disposed at said bird inlet end near said
8 inlet end plate and forming a sump between said transverse wall and said inlet end plate.

1 21. The chiller of claim 20, and further including a water recirculating system
2 having a recirculation inlet in communication with said sump and a recirculation outlet in
3 communication with said tank at said bird outlet end.

1 22. The chiller of claim 20, wherein said transverse wall lower portion is
2 water impervious and said transverse wall central portion is water pervious, so that water
3 moves over said lower portion and through said central portion and into said sump, and
4 birds are restrained from moving through said central portion and into said sump.

1 23. A process of chilling previously eviscerated whole birds or the like
2 comprising:

3 providing an elongated tank and an auger in the tank;
4 filling the tank with water;
5 depositing birds in a bird inlet end of the tank;
6 moving the birds with the auger from the bird inlet end to a bird outlet end of the
7 tank;
8 passing water into a sump in the bird inlet end of the tank;
9 retarding movement of the birds into the sump;
10 removing the birds from the bird outlet end of the tank;
11 recirculating the water from the sump through a heat exchanger to the bird inlet
12 end of the tank;
13 terminating the depositing of birds in the tank and the recirculating of water; and
14 recirculating the water from the sump through the heat exchanger and back to the
15 sump to clean the heat exchanger.

1 24. The process of claim 23 wherein the step of passing water into the sump
2 comprises passing water over a water impervious lower portion of a transverse wall in the
3 tank, and the step of retarding movement of the birds into the sump comprises retarding
4 the movement of the birds into the sump with a water previous central portion of the
5 transverse wall.

1 25. A process of chilling previously eviscerated whole birds or the like
2 comprising:
3 providing an elongated tank having a bird inlet end and a bird outlet end;
4 filling the tank with water;
5 depositing birds in the water at the bird inlet end of the tank;
6 moving the birds along the tank to the bird outlet end of the tank;
7 moving water from the bird outlet end toward the bird inlet end of the tank;
8 passing the water from the tank into a sump in the bird inlet end of the tank;
9 recirculating the water from the sump through a heat exchanger back to the bird
10 outlet end of the tank.

1 26. The process of claim 25, and further including the step of cleaning the heat
2 exchanger by moving water from the sump through the heat exchanger back to the sump.

1 27. A chiller for reducing the temperature of previously eviscerated whole
2 birds and the like , comprising:

3 an elongated tank having opposed bird inlet and outlet ends and defining a
4 reservoir there between;

5 a transverse wall extending across the tank at the bird inlet end and forming a
6 sump at the bird inlet end;

7 a water circulation system for introducing water into the bird outlet end and
8 draining water from the sump at the bird inlet end, the water circulation system including
9 a pump and a heat exchanger; and

10 a bypass for circulating water from the sump, through at least one of the pump and
11 the heat exchanger, and back to the sump.

1 28. The chiller of claim 27, wherein the transverse wall includes a lower
2 portion that is water impervious and a central portion that is water pervious, so that water
3 circulates over the lower portion and through the central portion and into the sump and
4 birds are retained out of the sump by the lower portion of the transverse wall.

1 29. The chiller of claim 27, and further including a drain conduit extending
2 from the reservoir through the sump to the outside of the tank.

1 30. The chiller of claim 27, and further including an auger for advancing birds from
2 the bird inlet end toward the transverse wall, the auger including a shaft extending along
3 the elongated tank, and wherein the transverse wall includes an opening for receiving the
4 shaft of the auger.